UNITED STATES PATENT AND TRADEMARK OFFICE

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10/083,146	02/27/2002	Satoshi Ejima	112068	6604

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EXAMINER
DANIELS, ANTHONY J

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/083,146	EJIMA, SATOSHI
	Examiner	Art Unit	
	Anthony J. Daniels	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 July 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>22-25</u> is/are allowed.

6)☒ Claim(s) <u>1-6,8-13,15,17-20</u> is/are rejected.

7)☒ Claim(s) <u>7,14 and 16</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Response to Amendment

1.   The amendment, filed 7/7/2005, has been entered and made of record. Claims 1-25 are

pending in the application.

2.   The amendment to the title has overcome examiner's objection.

3.   New grounds of rejection are being made on claim 21 not necessitated by amendment.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

4.   Claims 1,10,11,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sugahara et al. (US # 6,778,210) in view of Takahashi et al. (US # 6,496,226).

As to claim **1**, Sugahara et al. teaches a digital camera (see image pick-up apparatus in

Figure 1) comprising: an image-capturing device that captures a subject image (see Figure 1,

CCD "5"); an exposure control mechanism (see Figure 1, system controller "12") that

implements control on a length of exposure time to elapse while capturing the subject image at

said image-capturing device (see Col. 4, Lines 61-66); an image generating device (see Figure 1,

system controller "12") that generates a plurality of sets of image data through successive image-

capturing operations performed over varying exposure times by controlling said image-capturing

device and said exposure control device (see Col. 4, Lines 61-66); and an image processing

device (see Figure 1, pickup image generating section "8-3") that generates image data in which

the blur has been corrected by implementing image processing based upon the plurality of sets of

image data generated by said image generating device (see Col. 5, Lines 16-18). The claim

differs from Sugahara et al. in that it further requires that exposure times of the plurality of sets

of image data be different from one another.

In the same field of endeavor, Takahashi et al. teaches a video camera that takes a

plurality of pictures of different exposures and combines those images to produce an output

image signal (Col. 2, Lines 1-5). In light of the teaching of Takahashi et al., it would have been

obvious to one of ordinary skill in the art at the time the invention was made to take the images

of Sugahara et al. at different exposures and combine them at the digital process circuit, because

an artisan of ordinary skill in the art would recognize that this would widen the dynamic range of

the image (see Takahashi et al., Col. 2, Lines 29-40).

As to claim **10**, Sugahara et al., as modified by Takahashi et al., teaches a digital camera

according to claim 1, further comprising: a flash control device (see Sugahara et al., Figure 1,

exposure control driver "17") that controls a flash light (see Sugahara et al., Figure 1, strobe

"15") emitting unit to illuminate a subject at light emission quantities in proportion to varying

exposure times when generating a plurality of sets of image data over the varying exposure times

at said image generating device (see Takahashi et al., Col. 2, Lines 1-5)

As to claim **11**, Sugahara, as modified by Takahashi et al., teaches a digital camera

according to claim 1, further comprising: a blur detection device that detects a blur manifesting

in image data based upon a plurality of sets of image data generated at said image generating

device (see Sugahara et al., Figure 1, image blur detecting section "8-1"; Col. 2, Lines 34-37),

wherein: said image processing device records one set of image data among said plurality of sets

of image data into a recording medium (see Sugahara et al., Figure 1, memory card "10"; *{Note the connection in the block diagram of Figure 1 between the digital process circuit (8) and the memory card interface (9).}*) without implementing image processing for blur correction if the detection results obtained at said blur detection device indicate that none of the plurality of sets of image data manifest a blur (see Sugahara et al., Col. 5, Lines 14,15; "...when an image blur has been detected;"), and executes image processing for blur correction if a blur has occurred in one of the plurality of sets of image data and records image data obtained by correcting the blur into the recording medium (see Sugahara et al., Figure 1, memory card "10"; Col. 5, Lines 14,15; "...when an image blur has been detected;").

As to claim **20**, Sugahara et al., as modified by Takahashi et al., teaches a digital camera according to claim 1, further comprising: a detection unit that detects a photographing condition of said digital camera which manifests a blur in image data generated by said image generating device (see Sugahara et al., Figure 1, image blur detecting section "8-1"), wherein: said image processing device executes image processing for blur correction only when said detection unit detects the photographing condition of said digital camera which manifests a blur in the image data (see Sugahara et al., Col. 5, Lines 14,15, "...when an image blur has been detected;").

5.   Claims 2,5,12,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al. (see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of Horiuchi et al. (US # 6,037,972).

As to claim **2**, Sugahara et al., as modified by Takahashi et al., teaches a digital camera according to claim 1, wherein: said image generating device successively generates first image

data by capturing an image over a first exposure time and second image data by capturing an

image over a second exposure time set longer than the first exposure time (see Takahashi et al.,

Col. 2, Lines 1-5) and said image processing device generates third image data in which the blur

has been corrected (see Sugahara et al. Col. 5, Lines 14,15). The claim differs from Sugahara et

al., as modified by Takahashi et al., in that it further requires that the blur be corrected by

correcting at least a high-frequency component of a spatial frequency contained in the second

image data based upon the first image data and the second image data generated by said image

generating device.

In the same field of endeavor, Horiuchi et al. teaches blur detecting/correcting based on a

high-frequency video signal coming from a solid-state image pickup element (see Col. 3, Lines

40-43). In light of the teaching of Horiuchi et al., it would have been obvious to one of ordinary

skill in the art at the time the invention was made to incorporate the method of blur

detection/correction of Horiuchi et al. in the blur correcting sections of the system of Sugahara et

al, because an artisan of ordinary skill in the art would have recognized that this type of blur

detection/correction can also automatically focus the camera; thereby, making the operation of

the camera more efficient.

As to claim 5, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches

a digital camera according to claim 2, further comprising: a display control device (see Sugahara

et al., Figure 1, digital process circuit "8"; *{Note the connection between the digital process

circuit (8) and the LCD (11) in Figure 1.}*) that allows the second image data to be displayed at a

display unit (see Sugahara et al., LCD "11"; Col. 4, Lines 66,67, Col. 5, Lines 1-4) and disallows

display of the first image data at the display unit (*It is inherent that when one of a plurality of*

image data is displayed on an LCD or something of the sort, another of the plurality of image

data is not allowed for display.).

As to claim **12**, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al.,

teaches a digital camera according to claim 2 further comprising: a blur detection device (see

Sugahara et al., Figure 1, image blur detecting section "8-1") that detects a blur manifesting in

the second image data based upon the first image data and the second image data generated at

said image generating device (see Sugahara et al., Col. 2, Lines 34-37), wherein: said image

processing device records the second image data into a recording medium (see Sugahara et al.,

Figure 1, memory card "10") without implementing image processing for blur correction

obtained at said blur detection device indicate that the second image data do not manifest any

blur (see Sugahara et al., Col. 5, Lines 14,15, "...when an image blur has been detected;"), and

executes image processing for blur correction if a blur has manifested in the second image data

(see Sugahara et al., Col. 5, Lines 14,15, "...when an image blur has been detected;") and

records third image data obtained by correcting the blur into the recording medium (see Sugahara

et al., Figure 1, memory card "10").

As to claim **21**, Sugahara et al., as modified by Takahashi et al., teaches an image

processing system (see Figure 1) comprising: a digital camera (see Figure 1) having an image-

capturing device that captures a subject image (see Figure 1, CCD "5"), an exposure control

device (see Figure 1, system controller "12") that controls the length of exposure time to elapse

while capturing the subject image at said image-capturing device (see Col. 4, Lines 61-66) and

an image generating device (see Figure 1, system controller "12") that engages said exposure

control device and said image-capturing device to successively generate first image data by

capturing an image over a first exposure time and second image data by capturing an image over

a second exposure time (see Col. 4, Lines 61-66) set longer than the first exposure time (see

Takahashi et al., Col. 2, Lines 1-5). The claim differs from Sugahara et al., as modified by

Takahashi et al., in that it further requires that the image processing apparatus generates third

image data by correcting at least a high-frequency component of a spatial frequency contained in

the second image data based upon the first image data and the second image data generated by

said digital camera.

In the same field of endeavor, Horiuchi et al. teaches blur detecting/correcting based on a

high-frequency video signal coming from a solid-state image pickup element (see Col. 3, Lines

40-43). In light of the teaching of Horiuchi et al., it would have been obvious to one of ordinary

skill in the art at the time the invention was made to incorporate the method of blur

detection/correction of Horiuchi et al. in the blur correcting sections of the system of Sugahara et

al, because an artisan of ordinary skill in the art would have recognized that this type of blur

detection/correction can also automatically focus the camera; thereby, making the operation of

the camera more efficient.

6.   Claims 3,17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al.

(see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of

Horiuchi et al. (see Patent Number above) and further in view of Konishi et al. (US # 5,420,635).

As to claim 3, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches

a digital camera according to claim 2. The claim differs from Sugahara et al., as modified by

Takahashi et al. and Horiuchi et al., in that it further requires that said exposure control device

implements control so that the second exposure time is set to a length of time over which a correct exposure quantity that sets brightness of the image data to a correct level is achieved and so that the first exposure time is set equal to or less than approximately ½ of the second exposure time. *The language "so that the second exposure time is set to a length of time over which a correct exposure quantity that sets brightness of the image data to a correct level is achieved" is an advantage of the limitation of the claim; it is not a limitation of the claim.*

In the same field of endeavor, Konishi et al. teaches a first exposure time at one-half to one-fourth the exposure time of a second exposure time in a motion (blur) detection system (see Col. 29, Lines 38-46). In light of the teaching of Konishi et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the exposure times of Konishi et al. as the exposure times of Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., because an artisan of ordinary skill in the art would recognize that taking images of a long exposure time would allow for motion blur to occur, and taking images of short exposure times (1/2 – ¼ of the long exposure time) would allow for high luminance areas to be captured without movement occurring (see Konishi et al., Col. 29, Lines 40-43), thereby creating a true motion blur model through which motion blur can be effectively suppressed; furthermore, it allows for an increase in dynamic range at the low end.

As to claim 17, the limitations of claim 17 can be found in claim 3. Therefore, claim 17 is analyzed and rejected as previously discussed with respect to claim 3.

7.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al. (see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of

Horiuchi et al. (see Patent Number above) in view of Yamasaki et al. (US 20020044772) and

further in view of Konishi et al. (see Patent Number above).

As to claim 6, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches

a digital camera according to claim 2. The claim differs from Sugahara et al., as modified by

Takahashi et al. and Horiuchi et al., in that it further requires that said image processing device

generates the third image data by correcting an amplitude and a phase of a spatial frequency

component of the second image data based upon an amplitude ratio and a phase difference of the

spatial frequency component of the first image data and the spatial frequency component of the

second image data.

In the same field of endeavor, Yamasaki et al. teaches blur detecting and focus correcting

phase difference detecting method (see [0119]). In light of the teaching of Yamasaki et al., it

would have been obvious to one of ordinary skill in the art at the time the invention was made to

use the phase difference detection type of Yamasaki et al. in the digital process circuit of

Sugahara et al., because an artisan of ordinary skill in the art would recognize that the blur

detecting method of Yamasaki et al. could also be used to focus the camera of Sugahara et al., as

modified by Horiuchi et al.

Further in the same field of endeavor, Konishi et al. teaches amplitude correction by

multiplying the images in frame memory with an amplitude ratio of first and second image data

(see Figure 9, Col. 22, Lines 36-39; Col. 23, Lines 9-12); *{The image data of the frame memory*

(21,22) in Figure 9 are the first and second image data.}). In light of the teaching of Konishi et

al., it would have been obvious to one of ordinary skill in the art at the time the invention was

made to include in the digital process circuit of Sugahara et al. the correction of the amplitude of

the image data of Sugahara et al. using the weighted average of Konishi et al., because one of

ordinary skill in the art would recognize that such a correction would provide the corrected

image with not only a blur-free appearance, but also with a wider dynamic range.

8.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al.

(see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of

Horiuchi et al. (see Patent Number above) and further in view of Allen et al. (US # 5,430,480).

As to claim 4, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches

a digital camera according to claim 2, further comprising: a recording device that records the first

image data and the second image data (see Figure 1, memory card "10"). The claim differs from

Sugahara et al. in that it further requires that an image compression device compresses first

image data at a first compression rate and compresses second image data at a second

compression rate higher than the first compression rate, and the recording device records the

compressed images.

In the same field of endeavor, Allen et al. teaches the compression of two image data

frames (see Col. 4, Lines 37,38) and teaches a higher compression rate of simpler images (i.e.

images with low frequency detail) (see Col. 1, Lines 55-58; *{On page 22, Lines 22-25 of the*

specification, applicant shows that an image with less high frequency detail is compressed at a

higher rate.}). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to compress the image data of Sugahara et al., as modified by Takahashi et

al. and Horiuchi et al., with low frequency at a higher rate than the image data of Sugahara et al.,

as modified by Horiuchi et al., with higher frequency detail, because an artisan of ordinary skill

in the art would recognize that compressing the data as much as possible will save the most space in memory.

9.   Claims 8,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al. (see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of Horiuchi et al. (see Patent Number above) and further in view of Tamura et al. (US 6,040,860).

As to claim **8**, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches a digital camera of claim 2. The claim differs from Sugahara et al. in that it further requires that said image processing device implements gradation correction processing on the third image data if the third image data that have been generated contain brightness data indicating a value equal to or higher than a predetermined value.

In the same field of endeavor, Tamura et al. teaches comparing an image signal with a reference value and from this determining a degree of gradation which needs to be applied (see Col. 5, Lines 50-67, Col. 6, Lines 1-3). In light of the teaching of Tamura et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply gradation correction to the image of Sugahara et al., because an artisan of ordinary skill in the art would have recognized that the imaging apparatus could output an image with rich gradation across the entire gradation range without gradation loss or conspicuous noise from subjects imaged in a lighting condition ranging from backlit to normal lighting (see Tamura et al., Col. 6, Lines 38-42).

As to claim **9**, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches a digital camera according to claim 2. The claim differs from Sugahara et al., as modified by

Takahashi et al. and Horiuchi et al., in that it further requires that said image processing device implements processing the third image data to increase a quantifying bit number thereof if the third image data having been quantized at a predetermined quantifying bit number contain brightness data indicating a value equal to or higher than a predetermined value.

In the same field of endeavor, Tamura et al. teaches different quantized data for difference types of pixel information (see Col. 10, Lines 63-67; Col. 1, Lines 1-5) which are separated by threshold values (see Figure 4). In light of the teaching of Tamura et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to give different quantized values to groups of pixel data separated by a threshold value in the image data values of Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., because an artisan of ordinary skill in the art would recognize that this would prevent pixels with different analog values from having the same digital value.

10.   Claims 13,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al. (see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of Horiuchi et al. (see Patent Number above) and further in view of Mathew et al. (US # 6,628,711).

As to claim **13**, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., teaches a digital camera according to claim 9. The claim differs from Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., in that it further requires a panning direction setting unit through which a panning direction along which the second image data are captured is set, wherein: said image processing device changes details of image processing implemented to

generate the third image data in correspondence to the panning direction set at said panning direction setting unit.

In the same field of endeavor, Mathew et al. teaches a motion vector map which determines the motion of the camera due to panning (see Col. 3, Lines 33-37) and compensates for such (see Figure 1, jitter estimation unit "14"; Col. 3, Lines 43-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the jitter estimation means to compensate for the effect of panning in the system of Sugahara et al., as modified by Takahashi et al. and Horiuchi et al., because one ordinary skill in the art would recognize that eliminating the effects of panning would allow a user to obtain motion blur-free dynamic images.

As to claim **15**, the limitations of claim 15 can be found in claim 13. Therefore, claim 15 is analyzed and rejected as previously discussed with respect to claim 13.

11.   Claims 18,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara et al. (see Patent Number above) in view of Takahashi et al. (see Patent Number above) in view of Horiuchi et al. (see Patent Number above) in view of Mathew et al. (see Patent Number above) and further in view of Konishi et al. (see Patent Number above).

As to claim **18**, Sugahara et al., as modified by Takahashi et al. and Horiuchi et al. and Mathew et al., teach a digital camera according to claim 13. The claim differs from Sugahara et al., as modified by Takahashi et al. and Horiuchi et al. and Mathew et al., in that it further requires said exposure control device implements control so that the second exposure time is set to a length of time over which a correct exposure quantity that sets brightness of the image data

to a correct level is achieved and so that the first exposure time is set equal to or less than approximately ½ of the second exposure time.

In the same field of endeavor, Konishi et al. teaches a first exposure time at one-half to one-fourth the exposure time of a second exposure time in a motion (blur) detection system (see Col. 29, Lines 38-46). In light of the teaching of Konishi et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the exposure times of Konishi et al. as the exposure times of Sugahara et al., as modified by Takahashi et al. and Horiuchi et al. and Mathew et al., because an artisan of ordinary skill in the art would recognize that taking images of a long exposure time would allow for motion blur to occur and be corrected, as well as increase the dynamic range at the low end, and taking images of short exposure times (1/2 – 1/4 of the long exposure time) would allow for high luminance areas to be captured without movement occurring (see Konishi et al., Col. 29, Lines 40-43).

As to claim **19**, the limitations of claim 19 can be found in claim 18. Therefore, claim 19 is analyzed and rejected as previously discussed with respect to claim 18.

Allowable Subject Matter

12.   Claims 7,14,16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: As to claim **7**, the prior art does not teach or fairly suggest a digital camera of claim 2, wherein generation of image data is based upon an ***average*** phase difference of first and second image data. As to claim **14,16**,

the prior art does not teach or fairly suggest the correction of a image data primarily by

correcting a spatial frequency component along a vertical direction contained in the second

image data if horizontal panning is set at said panning direction setting unit, and generates the

third image data primarily by correcting a spatial frequency component along the horizontal

direction contained in the second image data if vertical panning is set at said panning direction

setting unit.

13.   Claims 22-25 are allowable.

The following is an examiner's statement of reasons for allowance: As to claim **22**, the

prior art does not teach or fairly suggest a digital camera wherein image data is generated by

correcting a spatial frequency component contained in other image data in correspondence to the

panning direction along which two sets of image data have been captured. As to claim **23,24**, the

prior art does not teach or fairly suggest a digital camera, wherein generation of image data is

based upon an *average* phase difference of first and second image data.

Conclusion

14.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Anthony J. Daniels whose telephone number is (571) 272-7362.

The examiner can normally be reached on 8:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Dave Ometz can be reached on (571) 272-7593. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AD
9/12/2005

NGOC-YEN VU
PRIMARY EXAMINER